officer for Interactive Intelligence, said. "Organisations are increasingly demanding the efficiency of unified messaging. They want their employees to be able to look at one place - their inbox - for their e-mail messages, voice mails and faxes.[36]

Q. WHAT UNIFIED MESSAGING PRODUCTS ARE AVAILABLE TO MARYLAND RESIDENTIAL AND SMALL BUSINESS CUSTOMERS TODAY?

A. The following companies currently offer such services to Maryland customers:

- **Unified Messaging LTD**: "Unified Messaging will change the way you think about communicating. To put it simply it lets you receive any form of message and collect it via any method you wish. Messages come into your in-box in any of the six methods detailed below. So once they are there, how do you collect them? Unified Messaging offers the most comprehensive methods available today to access all your communications."[37]

- **Active Voice**: "Active Voice, LLC is a global provider of unified messaging, computer telephony and voice messaging solutions, powering the communications infrastructure of businesses worldwide. Active Voice's innovative solutions provide the freedom to communicate with a variety of devices-from telephones to laptops-and the control to manage mission critical information. With over 110,000 systems sold in more than 60 countries, Active Voice delivers next generation communications solutions to enterprises across the globe."[38]

- **Captaris**: "CallXpress provides access to all messages—voice, fax and email—in one inbox, and makes them accessible from the telephone, mobile phone, computer or Internet."[39]

- **Blue Silicon**: "[E]nterprises that already have a telecom infrastructure and are hesitant about moving to UM can get a Blue Silicon member ASP (application service provider) to take care of it all. These ASPs install a single piece of CPE (customer provided equipment), really an upgraded version of Carmel Connection's CCI2000. Besides storing voicemail, Blue Silicon's CPE is also a gateway to the Blue Silicon cloud,

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[36] *Communite works with Exchange 2000 to provide centralised voice mail, fax and other advanced communications services*, M2 Presswire (Jan. 2, 2002).

[37] Unified Messaging, *Ultimate Messaging*, http://www.unified-messaging.com/message.htm#voicemail.

[38] Active Voice, *Corporate Facts*, http://www.activevoice.com/about/company/corpfacts.html.

[39] Captaris, *CallXpress*, http://www.captaris.com/callxpress/index.html.

uploading messages over the LAN and into a co-located Blue Silicon server. Messages are available via phone, browser, and wireless device."[40]

- **Key Voice**: "Key Voice's Interchange messaging solution gives each of your employees complete message management. Receive all your voice mail, email, and fax messages in a single universal inbox. You can manage all phone calls and mailbox setup options conveniently from your desktop interface using call control and mailbox administration features."[41]

- **Streem**: "Streem's mass messaging module, Streem Cast™, is a reliable, secure system designed to meet your volume requirements. Whether you need to send information to 100 or 100,000, we can help you design a solution that will be both cost-effective and scalable."[42]

- **Call Sciences**: "Personal Assistant joins telecommunications, messaging and IT systems and devices on a single platform. We unlock the power of the enterprise and put it directly into the hands of users, both inside and outside the company. Personal Assistant offers the following advantages to business enterprises."[43]

- **New Frontiers**: "New Frontiers Unified Messaging integrates your calls and voice messages into a powerful solution that you can access through any telephone or through your email to ensure you are always in touch."[44]

E. Conclusions

Q. WHAT CONCLUSIONS DO YOU DRAW FROM THIS LIST OF VOICE MESSAGING ALTERNATIVES AVAILABLE TO MARYLAND CONSUMERS?

A. A multitude of VM services virtually identical to those offered by Verizon MD are available to Maryland customers. Many CLECs make voicemail a part of the package that they are offering to consumers. Maryland customers can also choose among intermodal

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[40] A. Green, *Unified Messaging's Next Big Step*, Communications Convergence (June 5, 2001) http://www.cconvergence.com/article/TCM20010525S0017/2.

[41] Key Voice, *Interchange*, http://www.keyvoice.com/platforms/interchange.html.

[42] Streem, *Streem Cast*, http://www.streem.net/products/Cast/Info.asp.

[43] Call Sciences, *Value Proposition*, http://www.callsciences.com/solutions1.asp?cont=valuepropositionE&name=level2_2&ind=2&name3=level3_2&ind3=2&rnd=189.

[44] http://www.nfis.com/unified.html.

alternatives, giving rise to vigorous competition from answering machines, Internet-based voicemail, wireless systems and unified messaging services. In such a market, it is inconceivable that Verizon MD could expect to increase the market price for VM products and services by reducing output, which is the test for possession of market power. And, without the ability to increase the market price in this manner, the anticompetitive tying strategy alleged by CloseCall would not be profitable for Verizon MD.

IV. THE MARKET FOR BROADBAND INTERNET ACCESS IN MARYLAND

Q. HOW DO RESIDENCE AND SMALL BUSINESS CUSTOMERS PURCHASE HIGH-SPEED INTERNET ACCESS IN MARYLAND?

A. Today, there are four principal technologies by which broadband Internet access is supplied to residence and small business customers: cable modem service, satellite services, fixed wireless data services, and various varieties of telephone-based DSL service. All of these services compete with Verizon MD's high speed Internet access service for residential and small business customers, and numerous alternative suppliers are actively supplying broadband access service to residential and small business customers throughout Maryland. Customers and suppliers treat these types of access as substitutes, and many customers can choose among more than one technology.

A. XDSL Services

Q. WHAT ARE XDSL SERVICES?

A. XDSL is a group[45] of digital subscriber line services that supply high speed digital transmission over traditional telephone lines. XDSL services have the advantage of using existing loop plant, so the additional cost to the supplier and the customer is small. Its

[45] Including ADSL (Asymmetric DSL), RADSL (Rate-adaptive DSL), VDSL (Very-high-data-rate DSL), SDSL (Symmetric DSL) and HDSL (High-data-rate DSL). Data rates range from 1.5 Mbps/640 kbps (downstream/upstream) for ADSL to about 51.8 Mbps/2.3 Mbps for VDSL.

disadvantages include a need for short loop lengths (less than about 18 kilofeet for ADSL service and 4 kilofeet for higher-speed VDSL service).

Q. WHO IS CURRENTLY OFFERING XDSL SERVICES IN MARYLAND?

A. Providers offering XDSL services in Maryland include:

- **Covad**: Covad first began providing DSL service in Maryland near the end of 1998.[46] In April of 1999, Covad began providing service to over 200,000 homes and businesses in the Baltimore metropolitan area.[47] At that time, it was announced that "Covad is currently serving customers in downtown Baltimore, Cockeysville, Randallstown, Glen Burnie, Dundalk, Pikesville, Essex and Severna Park. Additionally, Covad is accepting orders for May installation in Bel Air, Towson and Annapolis. Covad plans to build the Baltimore/Washington, D.C. regional network to provide near blanket coverage. The coverage area will be from Bel Air, Maryland, in the North to Fredericksburg, Virginia, in the South; from Annapolis, Maryland, in the East to Frederick, Maryland, and Leesburg, Virginia, in the West."[48] Following its emergence from bankruptcy, Covad continues to provide service in Baltimore/Washington D.C. area.[49]

- **Network Access Solutions**: NAS lists Baltimore as one of the cities where its "CopperNet" services are available, as well as one of its northeastern "hub" cities.[50] NAS is currently undergoing Chapter 11 reorganization which was filed on June 4, 2002.

- **Cavalier Telephone**: Cavalier provides service in Baltimore, Eastern Shore/Salisbury, and Montgomery and Prince Georges Counties.[51] Cavalier first provided service in Maryland in the suburbs around the District of Columbia beginning in January 2001.[52] Cavalier began providing service to the greater Baltimore area in July 2001.[53] Conectiv Communications, acquired by Cavalier in November 2001, also provided service in

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[46] Covad Press Release, *Covad Communications Announces DSL Services in Washington D.C. Area* (Nov. 23, 1998) (announcing that within 30 days they would begin taking orders in Bethesda, Chevy Chase, Silver Spring, Rockville, and Gaitherburg, Maryland).

[47] Covad Press Release, *Covad Communications Brings DSL Service to Baltimore* (Apr. 1, 1999).

[48] Covad Press Release, *Covad Communications Brings DSL Service to Baltimore* (Apr. 1, 1999).

[49] Covad Communications, *Current Cities List*, http://www.covad.com/businessservices/whycovad.shtml.

[50] Network Access Solutions, *Investor Relations*, http://www.nas-corp.com/ir/index.shtml; Network Access Solutions, *Media Relations*, http://www.nas-corp.com/press/index.shtml.

[51] Cavalier Telephone, *Residential: Maryland*, http://www.cavaliertelephone.com/residential/res_md.php.

[52] Cavalier Press Release, *Cavalier Telephone Offers Local Telephone Services in Maryland* (Jan. 5, 2001).

[53] Cavalier Press Release, *Cavalier Telephone Comes Calling to the Greater Baltimore Area* (July 16, 2001).

Maryland (northern Maryland) at the announcement of the deal (June 2001).[54] Cavalier currently offers its Hotwire residential DSL services exclusively to customers of its residential basic exchange service.[55]

- **XO Communications**: XO began providing service to the Baltimore area in January 2001.[56] XO filed for Chapter 11 in June 2002 and emerged with a court-approved plan of reorganization in August.

- **Adelphia Business Solutions**: Adelphia Business Solutions provides dedicated service to businesses in the Baltimore area[57] and is currently undergoing reorganization.

- **New Frontiers Telecommunications**: New Frontiers offers DSL service in Hagerstown and western Maryland.[58]

- **Toadnet**: Founded in 1995, Toadnet is currently one of the 10 largest Internet providers in Baltimore and claims to be the leading independent DSL ISP in the Baltimore area. Introducing DSL service in 1999, Toadnet claims to cover all of Maryland by 2000.[59]

- **Stickdog Telecom Group**: Stickdog was one of the first CLECs to secure a license to provide dial-tone service in Virginia, and now provides phone service in Maryland as well as nationwide Internet services, including Dialup, DSL, Website Design and Hosting.[60]

In sum, although the recent financial implosion in the telecommunications markets has slowed the growth of data-oriented local exchange carriers, there are alternative suppliers of XDSL service available to residential and small business customers in Maryland.

B. Cable Modem Internet Access

Q. WHAT ARE CABLE MODEM SERVICES?

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[54] Cavalier Press Release, *Cavalier Telephone to Acquire East Coast CLEC, Conectiv Communications* (June 6, 2001); Cavalier Press Release, *Cavalier Telephone Announces Close of Conectiv Communications Acquisition* (Nov. 14, 2001).

[55] http://www.cavaliertelephone.com/dsl/dsl_main.htm, downloaded September 16, 2002.

[56] XO Press Release, *XO Launches Broadband Services in Baltimore* (Jan. 9, 2001).

[57] Adelphia Business Solutions, *Local Markets*, http://www.adelphia-abs.com/localmarkets/lm.cfm.

[58] New Frontiers Telecommunications, *Internet Service*, http://www.nfis.com/internet.html.

[59] http://www2.toad.net/about/. Downloaded September 16, 2002.

[60] http://www.stickdog.com/products.phtml

A. Cable modem services are a type of high-speed broadband Internet access provided over existing coaxial cable facilities to cable subscribers.

Q. WHO SUPPLIES CABLE MODEM-BASED BROADBAND INTERNET ACCESS IN MARYLAND?

A. The major cable television providers that supply Internet access in Maryland include:

- **Comcast**: the largest provider in Maryland, supplying @Home Internet cable service to customers in Baltimore and Comcast @Home in Montgomery County.
- **Antietam Cable**: supplies Kiva Networking Internet service in Hagerstown and Washington County.
- **GS Communications**: formerly Frederick Cablevision, offers GS Cyclone Internet access to about 53,000 customers in Adamstown, Braddock Heights, Brunswick, Buckeystown, Burkittsville, Doubs, Emmitsburg, Fort Detrick, Frederick City, Graceham, Ijamsville, Jafferson, Keedsville, Knoxville, Ladiesburg, Lake Linganore, Lewistown, Libertytown, Unionville, Middletown, Mt. Airy, Monrovia, Myersville, New Market, New Midway, Point of Rocks, Sharpsburg, Thurmont, Tuscarora, Walkersville, Wolfsville and Woodsboro.
- **Millennium Digital Media**: offers Cablespeed Internet access service to over 56,000 customers in northern Anne Arundel County.
- **Adelphia**: formerly Prestige supplies Powerlink Internet access to Westminster County.
- **GMP Cable**: offering broadband access to about 26,000 homes in St. Mary's County and 5,000 homes in Chesapeake Bay.

C. Other Broadband Access Alternatives

Q. WHAT OTHER TECHNOLOGIES ARE USED IN MARYLAND TO SUPPLY BROADBAND ACCESS TO RESIDENTIAL AND SMALL BUSINESS CUSTOMERS?

A. Fixed wireless and satellite broadband Internet access suppliers include:

- **Annapolis Wireless**: providing broadband access in the Annapolis area since 1997.

- **Chesapeake.net**: in conjunction with WorldCom and Cloudburst Broadband offers line-of-sight wireless broadband access around Chesapeake Bay.

- **SOMDwireless:** offers broadband Internet access to residential and business customers in Southern Maryland.

- **HUGHES:** the largest provider of satellite television services through its DIRECT TV offering also offers a broadband Internet access service called DIRECWAY, which can be purchased by any of its satellite customers ubiquitously throughout Maryland. According to its website, satellite service from DIRECT TV and Internet service through DIRECWAY can be purchased at all of the "big box" stores, including Best Buy, Circuit City and Blockbuster.

Penetration, availability and price vary a great deal across wireless and satellite providers. Nonetheless, independence from wireline providers (cable or telephone) makes these technologies available where wireline substitutes are uneconomic to provide.

D. Conclusions

Q. ARE EFFECTIVE SUBSTITUTES AVAILABLE TO CONSUMERS FOR VERIZON MD'S DSL SERVICES?

A. Yes. Currently cable companies are the predominant suppliers of broadband access by a wide margin. The FCC's most recent broadband access report[61] identifies about 12.8 million high-speed access lines nationally, of which about 4 million (31 percent) were ADSL, 7 million (55 percent) were cable and 1.8 million (14 percent) were non-ADSL wireline, fiber, satellite and fixed wireless systems. The same report shows the same percentage distribution in Maryland: 260,634 broadband access lines in Maryland at the end of 2001 of which 79,997 (31 percent) were DSL, 143,174 (55 percent) were cable and 37,463 (14 percent) were other. Hence, in Maryland, broadband access is more than twice as likely to be supplied by a cable or satellite company than by Verizon MD's ADSL service. For residential and small business customers, the U.S. figures are slightly lower:

[61] FCC, Industry Analysis and Technology Division, Wireline Competition Bureau, "High-Speed Services for Internet Access: Status as of December 31, 2001," issued July 2002, Table 7.

3.6 million (33 percent) used ADSL, 7.051 million (64 percent) million used cable modems and 0.339 million (3 percent) used some other form of access.[62]

Q. HOW PREVALENT IS BROADBAND INTERNET ACCESS?

A. Extrapolating from the 2000 Census, there were about 107 million households in the U.S. and about 2 million households in Maryland in 2001.[63] The FCC's numbers above suggest that about 10 percent and 11 percent of U.S. and Maryland households, respectively, subscribed to some form of broadband Internet access in 2001. In Maryland, 4 percent of households, on average, subscribed to ADSL service, while 7 percent used cable modems and less than 1 percent used a different technology. These figures correspond in order of magnitude with the findings of a recent survey undertaken by the Maryland Technology Development Corporation, which found 3 and 5 percent penetration among Maryland households for cable modem and DSL services in 2001.[64]

Q. IS CLOSECALL COMPETITIVELY DISADVANTAGED BECAUSE VERIZON MD CHOOSES NOT TO SUPPLY DSL SERVICES TO CLOSECALL'S RESIDENTIAL LOCAL EXCHANGE CUSTOMERS?

A. No. According to the FCC's data, on average, about 11 households out of every 100 approached by CloseCall in Maryland will already have some form of broadband Internet

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[62] *Ibid.*, Table 3.

[63] The Census lists 105.480 and 1.981 million households in the U.S. and Maryland, respectively, in 2000. The Census Bureau also reports annual population growth rates of 1.31 and 1.08 percent in the U.S. and Maryland respectively.

[64] RESI Research & Consulting, "eReadiness Maryland: Assessing Our Digital Opportunities," December 2001, survey funded in part by the U.S. Department of Commerce, Economic Development Administration and the State of Maryland, at 11. It isn't clear in the study whether 3 and 5 percent of Maryland households subscribe to cable and DSL or whether 3 and 5 percent of Maryland households *having home Internet access* subscribe to cable and DSL. In the latter case, household penetration would be significantly lower than the FCC found: since 55 percent of the RESI survey respondents have home Internet access, DSL penetration would be 2.8 percent and cable modem penetration would be 1.7 percent. Also, household penetration rates based on the FCC data would be higher than those from a consumer survey because the FCC's broadband line counts include small business lines.

access.[65] Of those 11, on average, 7 will have cable modems and 4 will have ADSL service. According to industry analysts, about 75 percent of U.S. households with access to DSL also have access to cable modem services, and about 33 percent of U.S. households currently have access to both DSL and cable modem service.[66] Applying these averages to Maryland, on average, 3 of the 4 ADSL households will also have cable modem service available to them. Thus, the proportion of potential CloseCall local exchange customers adversely affected by Verizon MD's policy is extremely small: only about 1 in 100 Maryland households currently subscribe to ADSL and do not have a cable modem alternative.

Q. MR. MAZERSKI ASSERTS (AT 29) THAT THERE IS NO UBIQUITOUS SUPPLIER OF LINE-SHARING DSL IN MARYLAND AND SUPPORTS THIS ASSERTION (RESPONSE TO VERIZON DATA REQUEST 1, NO.15) BY CITING AN FCC FIGURE THAT THERE ARE FEWER THAN 4 HIGH-SPEED ACCESS PROVIDERS IN 48 PERCENT OF THE ZIP CODES IN MARYLAND. DO YOU AGREE WITH THIS CONCLUSION?

A. No. First, Mr. Mazerski concedes that other suppliers of broadband access "exist and offer service in certain markets" but that Verizon MD is the only provider that serves the entire state. Ubiquity *of a single alternative provider* has nothing to do with Verizon MD's ability to control the broadband access market. What matters is the ability of enough customers to substitute away from Verizon MD's DSL service if they don't like its price or other characteristics so that Verizon MD's attempts to raise price or restrict supply fail. The fact that customers have alternatives to Verizon MD's service is all that is required, not that one supplier is able to serve them all.

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[65] Since CloseCall claims to specialize in small, underserved communities, its actual experience may be smaller.

[66] UNE Fact Report 2002, report submitted by BellSouth, SBC, Qwest and Verizon in the FCC's Triennial Review proceeding: CC Docket Nos. 01-338, 96-98 and 98-147, April 2002, at IV-18-23.

Second, the FCC statistics cited by Mr. Mazerski pertain to *all* high-speed lines in service—not just DSL lines—and Mr. Mazerski's response to Verizon's discovery correctly treats the broadband market as including DSL, cable, other wireline, fixed wireless and satellite.

> 15. Please state the basis for Mr. Mazerski's assertion at page 29 that there is no other ubiquitous provider of *line-sharing DSL* in Maryland for residential customers and small businesses. Please describe all inquiries, negotiations and discussions that CloseCall has had with other providers on providing *DSL* to CloseCall customers and provide all documents and other evidence relating to this statement.
>
> RESPONSE:
>
> According to statistics recently released by the Federal Communications Commission, there are fewer than four providers of high-speed service in 48% of the zip codes in Maryland. *This statistic includes cable modem and wireless broadband providers in addition to carriers providing line-sharing and other forms of DSL.* Documentation supporting this statement is provided hereto as Table 10 in Attachment H, which contains the Federal Communications Commission's High-Speed Services for Internet Access report, issued July 2002.[67]

Thus, Mr. Mazerski's appropriate recognition of all of the competitive alternatives to Verizon's DSL service in the data response is less limited and far more accurate than his testimony at page 29.[68]

Contrary to Mr. Mazerski's testimony, DSL over copper loops is certainly not "the sole conventional means" of broadband connection for residential and small business customers. In Maryland, the same FCC report cited by Mr. Mazerski shows that more than twice as many customers are served by non-ADSL broadband access than by DSL.

Third, Table 10 in the FCC report does show that 48 percent of Maryland zip codes have fewer than four high-speed access providers. The same report shows that only 10 percent of Maryland zip codes have no broadband access and that a majority of Maryland zip codes

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[67] CloseCall America, Inc, Response to Verizon Data Request No. 1, Dated September 3, 2002, Number 15. Emphasis added.

[68] There he claims that "Verizon owns and operates the vast majority of copper loops and local exchange facilities that constitute the sole conventional means of connection for residential consumers and small business."

(52 percent) have four or more providers. Obviously, presence in a zip code is not—by itself—dispositive of the presence of reasonable substitutes for Verizon MD's DSL services. However, combined with the FCC information on lines—as discussed above—the evidence Mr. Mazerski cites is perfectly consistent with a vigorously competitive market in which cable and wireless technologies serve more than twice the number of customers currently served by DSL.

Fourth, the very same local loop facilities over which Verizon MD offers DSL-based Internet access are readily available to other CLECs and DSL providers on an unbundled basis. One or more CLECs can provide the exact same combination of voice and data service over the exact same local loop facilities that Verizon uses to offer its high speed Internet access service. That is, the local loop over which DSL-based Internet access is supplied is an unbundled network element available to CLECs. CLECs can offer voice and DSL-based Internet access by partnering with an ISP or becoming an ISP themselves. In fact, CLECs can line-split among themselves: that is, a CLEC that purchases a UNE loop can offer the high frequency portion to other requesting CLECs.

V. SUMMARY

Q. WON'T COMPETITION IN THESE MARKETS SUFFER IF VERIZON MD IS NOT REQUIRED TO MAKE VM AND DSL SERVICES AVAILABLE TO CLOSECALL AND ITS CUSTOMERS?

A. No. The fact that CloseCall or its customers would have to find alternatives to Verizon MD's VM and DSL services would not mean that competition in these markets would suffer. On the contrary, competition will increase and market outcomes will be better for consumers whenever unnecessary regulations are removed. As I discussed above, the markets for DSL and VM are competitive and vibrant and competitors have the ability to provide (and are actively providing) competing services. Forcibly requiring resale of VM and DSL harms these markets. In discussing the competitive implications of not requiring the resale of DSL, Commissioner Abernathy in the *SBC 271 Order* stated that:

> "Finally, it is important to recognize that, if the Commission ultimately concludes in a rulemaking proceeding that SBC's DSL-based information services are not subject to the resale requirement in section 251(c)(4), that would not deny competitors an opportunity to provide their own high-speed Internet access services. Most importantly, CLECs retain the ability to provide DSL-based Internet access service by purchasing unbundled loops and attaching their own DSLAM in the incumbent LEC's central office. CLECs also may resell CSAs to business customers and may obtain resale under sections 251(b)(1). Independent Internet service providers may purchase bulk DSL transport from SBC under its advanced services tariff. And, of course, facilities-based competitors such as cable operators can provide service without relying on incumbent LECs' networks at all. I therefore do not believe that an interpretation along the lines suggested would have anticompetitive consequences, particularly because in my experience, competitive carriers do not typically rely on section 251(c)(4) as a means of providing DSL-related services. Indeed, by focusing on facilities-based entry strategies, such an interpretation of the Act likely would have highly procompetitive effects over the long term."

For decades, economists have urged and the FCC has consistently held that the enhanced service market should be left to develop free from regulatory constraint.[69] As the FCC explained in its *Computer II* proceeding, "[e]xperience gained from the competitive evolution of varied market applications of computer technology offered since the *First Computer Inquiry* compels us to conclude that the regulation of enhanced services is simply unwarranted."[70]

In sum, contrary to CloseCall's claims, consumer welfare would be increased if Verizon MD were not required to supply VM and DSL services on a wholesale basis to CloseCall or on a retail basis to CloseCall's customers. The economic rationale for these decisions is straightforward; Verizon MD competes against numerous products and services, including answering machines and Internet-based voice messaging services for its VM service and cable modems for its DSL services. Thus,

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[69] *See People of California v. FCC*, 39 F.3d 919, 923 (9th Cir. 1994) ("*California III*") ("From the inception of the enhanced services industry, the FCC has declined to regulate it in the interest of promoting competition among providers of enhanced services.")

[70] Final Decision, *Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry)*, 77 F.C.C.2d 384, 433 ¶ 128 (1980) ("*Computer II*").

1. The process of competition is harmed, not helped, by rules that impose asymmetric requirements on particular competitors or competitor types. Whatever competitive advantage Verizon MD gains because customers value its VM or DSL services over those of its competitors is properly is the sort of advantage that all competitors should be free to exploit in a competitive local exchange marketplace. CloseCall can provide packages of local and long distance service. AT&T can include wireless and video services in its packages. Verizon should be free to offer packages its customers find attractive, even though such offerings make competitors' lives more difficult, because local exchange customers are made better off by such competition.

2. Mandatory supply of naked VM or DSL service to competitors—particularly at a wholesale discount—reduces, rather than increases the scope of competition. Currently, other firms, technologies and facilities vie for customers with Verizon MD's VM and DSL services in competitive markets. If Verizon MD is required to provide these services at wholesale rates to CLECs, competition in all of these markets will be reduced.

3. Requiring a firm to supply a service (wholesale or retail) where it finds it unprofitable to do so, necessarily reduces its incentives to invest and innovate in that service or technology. Reducing such incentives is particularly harmful to consumers in telecommunications, where product and service life is short and technical change is rapid. For example, requiring the provision of naked DSL would reduce the profitability of ILEC DSL service, which, in turn, would reduce investment and research and development in DSL technology. Consumer choice would then be inexorably tilted towards wireless or cable-based broadband access and away from copper-based DSL.

4. Similarly, as Justice Breyer observed, mandating supply of an unprofitable service entails additional costs from "the tangled management inherent in shared use of a common resource," [*AT&T Corp. v. Iowa Utils. Bd.* 525 U.S. 366, 428-29 (1999)], and since the markets for VM and broadband access are reasonably competitive in Maryland, it is unlikely that there will be benefits from additional local exchange competition to offset these costs.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

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Dr. Taylor received a B.A. *magna cum laude* in Economics from Harvard College, an M.A. in Statistics and a Ph.D. in Economics from the University of California at Berkeley. He has taught economics, statistics, and econometrics at Cornell and the Massachusetts Institute of Technology and was a post doctoral Research Fellow at the Center for Operations Research and Econometrics at the University of Louvain, Belgium.

At NERA, Dr. Taylor is a Senior Vice President, heads the Cambridge office and is Director of the Telecommunications Practice. He has worked primarily in the field of telecommunications economics on problems of state and federal regulatory reform, competition policy, terms and conditions for competitive parity in local competition, quantitative analysis of state and federal price cap and incentive regulation proposals, and antitrust problems in telecommunications markets. He has testified on telecommunications economics before numerous state regulatory authorities, the Federal Communications Commission, the Canadian Radio-Television and Telecommunications Commission, federal and state congressional committees and courts. Recently, he was chosen by the Mexican Federal Telecommunications Commission and Telmex to arbitrate the renewal of the Telmex price cap plan in Mexico. Other recent work includes studies of the competitive effects of major mergers among telecommunications firms and analyses of vertical integration and interconnection of telecommunications networks. He has appeared as a telecommunications commentator on PBS Radio and on The News Hour with Jim Lehrer.

He has published extensively in the areas of telecommunications policy related to access and in theoretical and applied econometrics. His articles have appeared in numerous telecommunications industry publications as well as *Econometrica*, the *American Economic Review*, the *International Economic Review*, the *Journal of Econometrics*, *Econometric Reviews*, the *Antitrust Law Journal*, *The Review of Industrial Organization*, and *The Encyclopedia of Statistical Sciences*. He has served as a referee for these journals (and others) and the National Science Foundation and has served as an Associate Editor of the *Journal of Econometrics*.

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1983-1988 Division Manager, Economic Analysis, formerly Central Services Organization, formerly American Telephone and Telegraph Company: theoretical and quantitative work on problems raised by the Bell System divestiture and the implementation of access charges, including design and implementation of demand response forecasting for interstate access demand, quantification of potential bypass liability, design of optimal nonlinear price schedules for access charges and theoretical and quantitative analysis of price cap regulation of access charges.

BELL TELEPHONE LABORATORIES

1975-1983 Member, Technical Staff, Economics Research Center: basic research on theoretical and applied econometrics, focusing on small sample theory, panel data and simultaneous equations systems.

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1974-1975 Post Doctoral Research Associate: basic research on finite sample econometric theory and on cost function estimation.

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1972-1975 Assistant Professor, Department of Economics. (On leave 1974-1975.) taught graduate and undergraduate courses on econometrics, microeconomic theory and economic principles.

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PUBLICATIONS

"Smoothness Priors and Stochastic Prior Restrictions in Distributed Lag Estimation," *International Economic Review*, 15 (1974), pp. 803-804.

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